

MODEL 1890

TRANSISTOR REFERENCE CHART

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PHONE — 541-8060

TWX — CV 662

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WESTERN UNION — KJ

2490-460

USE OF TRANSISTOR REFERENCE CHART

The transistor Reference Chart is to be used as a guide in evaluating the quality of transistors. In an effort to simplify the Chart as much as possible, only the pertinent information necessary for testing is given. For any additional information the transistor manufacturer's literature should be consulted.

In an effort to explain the use of the Transistor Reference Chart each column of the chart will be described.

Type

This column specifies the type of transistor PNP or NPN. The Type Selector switch should be set accordingly.

Max. Icbo

This column specifies the maximum allowable leakage current. If the leakage current of the transistor under test exceeds this value it can be considered out of tolerance, or defective. The Collector Voltage used for this test should be 4.5V. This test must be performed out of circuit. See I_{CBO} test procedure under Operating Instructions.

Vce

This is the Collector to Emitter voltage specified for the Beta test In or Out of Circuit. The Collector Voltage Selector Switch should be set accordingly.

Ic

This column gives the I_c current in milliamperes. The Beta Test should be made at or near this level. The I_c control adjusts this level when the Function Selector is set to the I_c position. This adjustment can be made In or Out of Circuit.

Beta

Beta values are given in three columns -- Minimum, Typical, and Maximum. In some cases only Typical Values are listed. This is because the Transistor Manufacturer only lists the Typical Value in his specification sheets.

Notes

Notes 1 thru 8 are listed in the beginning of the Transistor Reference Chart. These notes are self explanatory and used in specific cases where deviation from conventional test procedure is required.

MODEL 1890

TRANSISTOR REFERENCE CHART

NOTES:

- Note 1. Perform "Ices" test. Short emitter and base binding posts and test as for "Icbo". Remove jumper for "Beta" test.
- Note 2. Perform "Icer" test. Reverse the emitter and base leads. Connect a 30 ohm resistor between the emitter and base terminals.
- Note 3. Perform "Icer" test. Reverse the emitter and base leads. Connect a 200 ohm resistor between the emitter and base terminals.
- Note 4. Perform "Icer" test. Reverse the emitter and base leads. Connect a 10K ohm resistor between the emitter and base terminals.
- Note 5. Connect B1 and B2 to the base terminal and test as triode.
- Note 6. Indicated value for "Icbo" is typical not maximum.
- Note 7. Set Collector Volts (Vcb) to 1.5.
- Note 8. Set Collector Volts (Vcb) to 3.0.

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N29	NPN	5	4.5	1.0		49		Note 6 Note 6
2N34	PNP	16	4.5	1.0		75		
2N35	NPN	16	4.5	1.0		75		
2N43	PNP	5	4.5	1.0	30	42		
2N43A	PNP	5	4.5	1.0	30	42	66	
2N44	PNP	5	4.5	1.0		25		
2N44A	PNP	5	4.5	1.0		25		
2N45	PNP	5	4.5	1.0		25		
2N47	PNP	3	4.5	1.0		39		
2N49	PNP	3	4.5	1.0		39		
2N59	PNP	7	4.5	10		65		Note 6 Note 6
2N59A	PNP	7	4.5	10		110		
2N59B	PNP	7	4.5	10		110		
2N59C	PNP	7	4.5	10		110		
2N60	PNP	7	4.5	10		90		
2N60A	PNP	7	4.5	10		90		
2N60B	PNP	7	4.5	10		90		
2N60C	PNP	7	4.5	10		90		
2N61	PNP	7	4.5	10		50		
2N61A	PNP	7	4.5	10		50		
2N61B	PNP	7	4.5	10		50		Note 6 Note 6 Note 6 Note 3
2N61C	PNP	7	4.5	10		50		
2N63	PNP	6	4.5	1.0		22		
2N64	PNP	6	4.5	1.0		45		
2N65	PNP	5	4.5	1.0		90		
2N68	PNP	2.5ma	4.5	100		35		

2N76	PNP	10	4.5	1.0	9	19	99	
2N77	PNP	4	4.5	0.7		55		
2N78, A	NPN	1.5	4.5	1.0	32	58	200	
2N81	PNP	6	4.5	1.0	20		60	
2N94	NPN	25	4.5	1.0	19	40		Note 4
2N94A	NPN	25	4.5	1.0	19	40		Note 4
2N95	NPN	2.5ma	4.5	100		35		Note 3
2N97	NPN	2	4.5	0.5		13		
2N97A	NPN	2	4.5	0.5		13		
2N98	NPN	10	4.5	1.0		40		
2N98A	NPN	10	4.5	1.0		40		
2N99	NPN	10	4.5	1.0		40		
2N101	PNP	2.5ma	4.5	100		35		Note 3
2N102	NPN	2.5ma	4.5	100		35		Note 3
2N104	PNP	6	4.5	1.0		44		
2N105	PNP	4	4.5	0.7		55		
2N106	PNP	12	4.5	0.5	25			Note 8
2N107	PNP	6	4.5	1.0		20		
2N109	PNP	6	1.5	50		60		
2N111	PNP	1	4.5	1.0		40		Note 6
2N112	PNP	1	4.5	1.0		40		Note 6
2N113	PNP	1	4.5	1.0		45		Note 6
2N114	PNP	1	4.5	1.0		65		Note 6
2N117	NPN	0.5	4.5	0.5		10		
2N118	NPN	0.5	4.5	1.0		20		
2N118A	NPN	0.5	4.5	1.0		50		
2N119	NPN	0.5	4.5	1.0		63		
2N120	NPN	0.5	4.5	1.0		100		
2N123	PNP	3	4.5	1.0		90		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N125	NPN	2	4.5	1.0		36		
2N126	NPN	2	4.5	1.0		74		
2N128	PNP	3	3.0	0.5	19	40	66	Note 8
2N129	PNP	3	3.0	0.5	11	21	39	
2N130	PNP	6	4.5	1.0		22		Note 6
2N130A	PNP	6	4.5	1.0		22		
2N131	PNP	6	4.5	1.0		45		Note 6
2N131A	PNP	6	4.5	1.0		45		
2N132	PNP	6	4.5	1.0		90		Note 6
2N132A	PNP	6	4.5	1.0		90		
2N133	PNP	12	1.5	0.5	25			Note 7
2N133A	PNP	6	4.5	1.0		50		
2N135	PNP	5	4.5	1.0		20		
2N136	PNP	5	4.5	1.0		40		
2N137	PNP	5	4.5	1.0		60		
2N138	PNP	6	4.5	1.0		140		Note 6
2N139	PNP	4	4.5	1.0		48		
2N140	PNP	4	4.5	0.6		48		
2N141	PNP	2ma	1.5	100		15		Note 3
2N142	NPN	2ma	1.5	100		15		Note 3
2N143	PNP	2ma	1.5	100		15		Note 3
2N144	PNP	2ma	1.5	100		15		Note 3
2N145	NPN	3	4.5	1.0	30			
2N146	NPN	3	4.5	1.0	33			
2N147	NPN	3	4.5	1.0	36			
2N156	PNP	400	1.5	100		55		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N195	PNP	3	4.5	1.0	100	180	300	Note 8
2N200	PNP	2.4	4.5	1.0	30	45	60	Note 6
2N204	PNP	2.4	4.5	1.0	50	80	120	Note 6
2N205	PNP	2.4	4.5	1.0	15	25	35	Note 6
2N206	PNP	4	4.5	1.0		47		
2N207	PNP	9	4.5	1.0	35	100		
2N207A	PNP	6	4.5	1.0	35	100		
2N207B	PNP	6	4.5	1.0	35	100		
2N211	NPN	13	4.5	1.0	10	20		Note 4
2N212	NPN	25	4.5	1.0				Note 4
2N213	NPN	16	4.5	1.0	70			
2N213A	NPN	16	4.5	1.0	100	150		
2N214	NPN	15	1.5	35		60		
2N214MP	NPN	Matched pair of 2N214						
2N215	PNP	4	4.5	1.0		44		
2N216	NPN	25	4.5	1.0		45		Note 4
2N217	PNP	6	1.5	50		60		
2N218	PNP	4	4.5	1.0		48		
2N219	PNP	4	4.5	0.6		48		
2N220	PNP	5	4.5	0.5		65		
2N223	PNP	14	4.5	2.0	70	110	150	
2N224	PNP	15	4.5	10		80		
2N225	PNP	Pair of 2N224 with Beta matched to within 20%						
2N226	PNP	10	4.5	10		70		
2N227	PNP	Pair of 2N226 with Beta matched to within 20%						
2N229	NPN	65	4.5	1.0	25	75		Note 4

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N316	PNP	2	1.5	50		50		
2N316A	PNP	2	4.5	1.0		130		
2N317	PNP	2	1.5	50		120		
2N317A	PNP	2	4.5	1.0	100	200		
2N319	PNP	6.5	1.5	20		34		
2N320	PNP	6.5	1.5	20		50		
2N321	PNP	6.5	1.5	20		80		
2N322	PNP	8	4.5	1.0		45		
2N323	PNP	8	4.5	1.0		68		
2N324	PNP	8	4.5	1.0	40	85		
2N327	PNP	.05	4.5	1.0	9	14	18	
2N327A	PNP	.04	4.5	3.0		14		
2N328	PNP	.05	4.5	1.0	18	24	36	
2N328A	PNP	.04	4.5	3.0		28		
2N329	PNP	.05	4.5	1.0	36	50	72	
2N329A	PNP	.04	4.5	3.0		60		
2N330	PNP	.05	4.5	1.0	9	30	72	
2N330A	PNP	.04	4.5	3.0		25		
2N331	PNP	6	4.5	1.0	30	50	70	
2N332	NPN	0.8	4.5	1.0	9	15	22	
2N332A	NPN	0.2	4.5	0.5	9	16	22	
2N333	NPN	0.8	4.5	1.0	18	30	44	
2N333A	NPN	0.2	4.5	1.0	18	30	44	
2N334	NPN	0.8	4.5	1.0	18	39	90	
2N334A	NPN	0.2	4.5	1.0	18	38	90	
2N335	NPN	0.8	4.5	1.0	36	60	90	

2N335A, B	NPN	0.2	4.5	1.0	37	52	90	
2N336	NPN	0.8	4.5	1.0	76	120		
2N336A	NPN	0.2	4.5	1.0	76	95		
2N337	NPN	0.5	4.5	1.0	19	55		
2N337A	NPN	.04	4.5	1.0	19	55		
2N338	NPN	0.5	4.5	1.0	39	99		
2N338A	NPN	.04	4.5	1.0	19	55		
2N339	NPN	0.4	4.5	10	10			
2N339A	NPN	0.4	4.5	5.0	25		90	
2N340	NPN	0.4	4.5	10	10			
2N340A	NPN	0.4	4.5	5.0	25		90	
2N341	NPN	0.4	4.5	10	10			
2N341A	NPN	0.4	4.5	1.0	25		90	
2N342	NPN	0.4	4.5	10	10			
2N342A	NPN	0.4	4.5	10	10			
2N342B	NPN	0.4	4.5	1.0	7		32	
2N343	NPN	0.4	4.5	10	25			
2N343B	NPN	0.4	4.5	1.0	20		90	
2N344	PNP	3	3.0	0.5	11	22	33	
2N345	PNP	3	3.0	0.5	25	35	110	
2N346	PNP	3	3.0	0.5	10	20	35	
2N354	PNP	0.1	4.5	1.0	9	18		
2N355	PNP	0.1	4.5	1.0	9	18		
2N356	NPN	5	4.5	1.0	30	30		
2N356A	NPN	5	4.5	1.0	60	60		
2N357	NPN	5	4.5	1.0	45	45		
2N357A	NPN	5	4.5	1.0	90	90		
2N358	NPN	5	4.5	1.0	60	60		
2N358A	NPN	5	4.5	1.0	120	120		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N359	PNP	9	4.5	1.0		150		
2N360	PNP	9	4.5	1.0		100		
2N361	PNP	9	4.5	1.0		70		
2N362	PNP	9	4.5	1.0		120		
2N363	PNP	9	4.5	1.0		50		
2N364	NPN	4	4.5	1.0		15		
2N365	NPN	4	4.5	1.0		26		
2N366	NPN	4	4.5	1.0		65		
2N367	PNP	8	4.5	1.0		15		
2N368	PNP	8	4.5	1.0		36		
2N369	PNP	8	4.5	1.0		55		
2N370	PNP	12	4.5	1.0		55		
2N371	PNP	12	4.5	1.0		55		
2N372	PNP	12	4.5	1.0		55		
2N373	PNP	5	4.5	1.0		55		
2N374	PNP	5	4.5	1.0		55		
2N377	NPN	4	1.5	30		30		
2N381	PNP	6	4.5	10	35	60	85	
2N382	PNP	6	4.5	10	70	90	135	
2N383	PNP	6	4.5	10	90	115	135	
2N384	PNP	7	4.5	1.5	20	60	175	
2N385	NPN	4	1.5	30		60		
2N385A	NPN	4	1.5	30		60		
2N388	NPN	5	1.5	30		100		Note 7
2N388A	NPN	5	1.5	30		100		Note 7
2N393	PNP	5	3.0	0.5	40	155		

[illegible]

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N438A	NPN	4	4.5	1.0	15	25		
2N439	NPN	4	4.5	1.0	15	35		
2N439A	NPN	4	4.5	1.0	15	35		
2N440	NPN	4	4.5	1.0	15	65		
2N440A	NPN	4	4.5	1.0	15	65		
2N444	NPN	4	4.5	1.0	10	15		
2N444A	NPN	4	4.5	1.0	15	25		
2N445	NPN	4	4.5	1.0	20	35		
2N445A	NPN	4	4.5	1.0	35	70		
2N446	NPN	4	4.5	1.0	30	60		
2N446A	NPN	4	4.5	1.0	60	120		
2N447	NPN	4	4.5	1.0	50	125		
2N447A	NPN	4	4.5	1.0	85	150		
2N448	NPN	0.5	1.5	1.0	8	25	51	Note 6
2N449	NPN	0.5	1.5	1.0		72		Note 6
2N450	PNP	4	4.5	1.0		130		
2N460	PNP	3	4.5	1.0		24		
2N461	PNP	3	4.5	1.0		49		
2N464	PNP	7	4.5	1.0	14	26		
2N465	PNP	7	4.5	1.0	27	45		
2N466	PNP	7	4.5	1.0	56	90		
2N467	PNP	7	4.5	1.0	112	180		
2N470	NPN	5na	4.5	1.0	10	16	25	
2N471	NPN	5na	4.5	1.0	10	16	25	
2N471A	NPN	5na	4.5	1.0	10	16	25	
2N472, A	NPN	5na	4.5	1.0	10	16	25	

2N473	NP	5na	4.5	1.0	20	30	50
2N474	NP	5na	4.5	1.0	20	30	50
2N474A	NP	5na	4.5	1.0	20	30	50
2N475, A	NP	5na	4.5	1.0	20	30	50
2N476	NP	5na	4.5	1.0	30	45	60
2N477	NP	5na	4.5	1.0	30	45	60
2N478	NP	5na	4.5	1.0	40	60	100
2N479	NP	5na	4.5	1.0	40	60	100
2N479A	NP	5na	4.5	1.0	40	60	100
2N480	NP	5na	4.5	1.0	40	60	100
2N480A	NP	5na	4.5	1.0	40	60	100
2N481	PN	6	4.5	1.0		50	
2N482	PN	6	4.5	1.0		50	
2N483	PN	6	4.5	1.0		60	
2N484	PN	6	4.5	1.0		90	
2N485	PN	6	4.5	1.0		50	
2N486	PN	6	4.5	1.0		100	
2N495	PN	0.4	4.5	1.0	15	30	
2N496	PN	.06	1.5	15		12	
2N497, A	NP	4	4.5	30		30	
2N498, A	NP	4	4.5	30		30	
2N499	PN	5	4.5	2.0		35	
2N501	PN	5	4.5	2.0		40	
2N501A	PN	5	4.5	2.0		40	
2N502	PN	3	4.5	2.0	9	65	
2N502A	PN	3	4.5	2.0	15	65	
2N503	PN	3	4.5	2.0	9	45	
2N504	PN	10	4.5	1.0		16	
2N508	PN	8	4.5	1.0		112	

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N509	PNP	2.5	4.5	1.0		49		Note 4
2N515	NPN	25	4.5	0.5	10			Note 4
2N516	NPN	25	4.5	0.5	10			Note 4
2N517	NPN	25	4.5	0.5	10			Note 4
2N518	PNP	4	1.5	10		60		
2N519	PNP	2.5	4.5	1.0		25		
2N519A	PNP	2	4.5	1.0		25		
2N520	PNP	2	4.5	1.0	20	40		
2N520A	PNP	2	4.5	1.0	40	100		
2N521	PNP	10	4.5	1.0		70		
2N521A	PNP	2	4.5	1.0		150		
2N522	PNP	10	4.5	1.0		120		
2N522A	PNP	2	4.5	1.0	100	200		
2N523	PNP	10	4.5	1.0		200		
2N523A	PNP	2	4.5	1.0	125			
2N524, A	PNP	4	4.5	1.0	16	30	41	
2N525, A	PNP	4	4.5	1.0	30	44	64	
2N526, A	PNP	4	4.5	1.0	44	64	88	
2N527, A	PNP	4	4.5	1.0	60	80	120	
2N534	PNP	5	4.5	1.0	35	100		
2N535	PNP	6	4.5	1.0	35	100	200	
2N535A	PNP	6	4.5	1.0	35	100	200	
2N535B	PNP	6	4.5	1.0	35	100	200	
2N536	PNP	6	1.5	10		150		
2N537	PNP	2.5	4.5	10	9		200	
2N541	NPN	5na	4.5	1.0	80	130	200	

2N542, A	NPN	5na	4.5	1.0	80	130	200	Note 7 Note 7
2N543, A	NPN	5na	4.5	1.0	80	130	200	
2N544	PNP	2.5	4.5	1.0		55		
2N545	NPN	4	1.5	100		20		
2N546	NPN	4	1.5	100		20		
2N547	NPN	4	1.5	100		20		
2N548	NPN	4	1.5	100		20		
2N549	NPN	4	1.5	100		20		
2N550	NPN	4	1.5	100		20		
2N551	NPN	4	4.5	50	20	30	80	
2N552	NPN	6	4.5	50	20	30	80	
2N559	PNP	3	4.5	10		50		
2N560	NPN	.05	4.5	10		50		
2N563	PNP	3	4.5	1.0		25		
2N564	PNP	3	4.5	1.0		25		
2N565	PNP	3	4.5	1.0		55		
2N566	PNP	3	4.5	1.0		55		
2N567	PNP	3	4.5	1.0		100		
2N568	PNP	3	4.5	1.0		100		
2N569	PNP	3	4.5	1.0		150		
2N570	PNP	3	4.5	1.0		150		
2N571	PNP	3	4.5	1.0		200		
2N572	PNP	3	4.5	1.0		200		
2N576	NPN	5	4.5	1.0		80		
2N576A	NPN	5	4.5	1.0		80		
2N578	PNP	3	1.5	50		50		
2N579	PNP	3	1.5	50		105		
2N580	PNP	3	1.5	50		120		
2N581	PNP	5	1.5	20		30		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N582	PNP	3	1.5	20		60		Note 7
2N583	PNP	5	1.5	20		30		
2N584	PNP	3	1.5	20		60		
2N585	NPN	7	1.5	20		40		
2N587	NPN	3	1.5	50		60		
2N591	PNP	7	4.5	2.0		70		Note 7
2N592	PNP	5	4.5	1.0		25		
2N593	PNP	5	4.5	1.0		35		
2N594	NPN	5	4.5	1.0		50		
2N595	NPN	5	4.5	1.0		75		
2N596	NPN	5	4.5	1.0		100		Note 7
2N597	PNP	5	4.5	3.0		70		
2N598	PNP	5	4.5	3.0		125		
2N599	PNP	5	4.5	3.0		175		
2N600	PNP	5	4.5	3.0		125		
2N601	PNP	5	4.5	3.0		175		Note 7
2N602	PNP	5	4.5	1.0		25		Note 7
2N602A	PNP	3	1.5	0.5	20		80	
2N603	PNP	5	4.5	1.0		50		
2N603A	PNP	3	1.5	0.5	30		100	
2N604	PNP	5	4.5	1.0		100		
2N604A	PNP	3	1.5	0.5	40		120	
2N609	PNP	12	4.5	10		110		
2N610	PNP	12	4.5	10		90		
2N611	PNP	12	4.5	10		65		
2N612	PNP	12	4.5	1.0		20		

2N613	PNP	12	4.5	1.0				32		
2N619	NPN	.04	1.5	0.5				15		
2N620	NPN	.04	4.5	1.0				30		
2N621	NPN	.04	4.5	1.0				60		
2N623	PNP	5	4.5	2.0			10	35		
2N624	PNP	10	4.5	1.0				30		
2N625	NPN	50	1.5	50				50		
2N631	PNP	9	4.5	1.0				150		
2N632	PNP	9	4.5	10				175		
2N633	PNP	9	4.5	10				60		
2N634	NPN	5	1.5	10			15			
2N634A	NPN	4	1.5	10				55		
2N635	NPN	5	1.5	10			25			
2N635A	NPN	4	1.5	10				100		
2N636	NPN	5	1.5	10			35			
2N636A	NPN	4	1.5	10				190		
2N640	PNP	3	4.5	1.0				55		
2N641	PNP	4	4.5	1.0				55		
2N642	PNP	4	4.5	1.0				55		
2N643	PNP	10	4.5	5.0				45		
2N644	PNP	10	4.5	5.0				45		
2N645	PNP	10	4.5	5.0				45		
2N647	NPN	6	1.5	50				80		
2N649	NPN	9	1.5	50				80		
2N650	PNP	4	4.5	1.0			30	49	70	
2N650A	PNP	4	4.5	1.0			30	60	70	
2N651	PNP	4	4.5	1.0			50	80	120	
2N651A	PNP	4	4.5	1.0			50	100	120	
2N652	PNP	4	4.5	1.0			100	130	225	

Note 7

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N652A	PNP	4	4.5	1.0	100	150		
2N653	PNP	6	4.5	1.0	30	49	70	
2N654	PNP	6	4.5	1.0	50	80	125	
2N655	PNP	6	4.5	1.0	100	130		
2N656, A	NPN	4	4.5	30		60		
2N657, A	NPN	4	4.5	30		60		
2N658	PNP	3	4.5	1.0		55		
2N659	PNP	3	4.5	1.0		75		
2N660	PNP	3	4.5	1.0		110		
2N661	PNP	3	4.5	1.0		160		
2N662	PNP	3	4.5	1.0		65		
2N670	PNP	25	1.5	100		100		Note 7
2N671	PNP	25	1.5	100		100		Note 7
2N672	PNP	25	1.5	100		100		Note 7
2N673	PNP	25	1.5	100		100		Note 7
2N674	PNP	27	1.5	100		190		
2N679	NPN	10	1.5	30	20			
2N694	PNP	3	4.5	2.0	9	19	200	
2N695	PNP	3	1.5	10		40		
2N696	NPN	0.4	1.5	50		30		
2N697	NPN	0.4	1.5	50		60		
2N698	NPN	0.7	4.5	1.0	15			
2N699	NPN	0.7	4.5	1.0	35		100	
2N699B	NPN	2na	4.5	1.0	35		100	
2N700, A	PNP	2	4.5	2.0	4	10		
2N702	NPN	0.3	4.5	10		50		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N731	NPN	0.4	4.5	50		70		
2N734	NPN	0.3	4.5	5.0	20		50	
2N735	NPN	0.3	4.5	5.0	40		100	
2N735A	NPN	1.5na	4.5	1.0	30		100	
2N736	NPN	0.3	4.5	5.0	80		200	
2N736A	NPN	.16	4.5	5.0	80		200	
2N736B	NPN	1.5na	4.5	1.0	60		150	
2N738	NPN	0.3	4.5	5.0	20		50	
2N739	NPN	0.3	4.5	5.0	40		100	
2N739A	NPN	1.1na	4.5	1.0	30		100	
2N740	NPN	0.3	4.5	5.0	80		200	
2N740A	NPN	1.1na	4.5	1.0	60		200	
2N741, A	PNP	3	4.5	5.0	20			
2N742	NPN	.05	1.5	10	25			Note 1
2N743	NPN	0.5	1.5	10		40		Note 1
2N744	NPN	0.5	1.5	10		80		
2N745	NPN	0.5	4.5	1.0		55		
2N746	NPN	0.5	4.5	1.0		99		
2N747	NPN	0.1	4.5	10		50		
2N748	NPN	0.1	4.5	10		25		
2N749	NPN	.25	4.5	1.0		15		
2N750	NPN	.25	4.5	1.0		15		
2N751	NPN	0.8	4.5	1.0		15		
2N752	NPN	.04	4.5	1.0	40		120	
2N753	NPN	0.3	1.5	10		80		
2N754	NPN	0.3	4.5	1.0		40		

2N755	NPN	0.2	4.5	1.0	12	40	22
2N756	NPN	.08	4.5	1.0	12		22
2N756A	NPN	.04	4.5	1.0	18		40
2N757	NPN	.08	4.5	1.0	18		40
2N757A	NPN	.04	4.5	1.0	18		90
2N758	NPN	.08	4.5	1.0	18		90
2N758A	NPN	.04	4.5	1.0	18		90
2N758B	NPN	1.5na	4.5	1.0	18		90
2N759	NPN	.08	4.5	1.0	36		90
2N759A	NPN	.04	4.5	1.0	36		90
2N759B	NPN	1.5na	4.5	1.0	36		90
2N760	NPN	.08	4.5	1.0	76		333
2N760A	NPN	.04	4.5	1.0	76		333
2N760B	NPN	1.5na	4.5	1.0	76		333
2N761	NPN	.09	4.5	1.0		35	
2N762	NPN	.09	4.5	1.0		70	
2N768	PNP	3	1.5	2.0		60	
2N769	PNP	3	1.5	10		70	
2N770	NPN	0.4	4.5	10		30	
2N771	NPN	0.4	4.5	10		60	
2N772	NPN	0.3	4.5	10		25	
2N773	NPN	0.4	4.5	2.0	5	10	16
2N774	NPN	0.4	4.5	2.0	10	18	32
2N775	NPN	0.4	4.5	2.0	25	44	80
2N776	NPN	0.4	4.5	2.0	5	10	16
2N777	NPN	0.4	4.5	2.0	10	18	32
2N778	NPN	0.4	4.5	2.0	25	44	80
2N779	PNP	3	1.5	10		80	
2N779A, B	PNP	3	1.5	10		130	

Transistor	Type	Max. Icbo μ a.	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N780	NPN	3na	4.5	1.0		125		
2N781	PNP	3	1.5	10	25			
2N782	PNP	3	1.5	10	20			
2N783	NPN	.10	1.5	10	20		60	
2N784	NPN	.10	1.5	10	25			
2N784A	NPN	10na	1.5	10	25			
2N789	NPN	0.8	4.5	1.0	9		20	
2N790	NPN	0.8	4.5	1.0	18		40	
2N791	NPN	0.8	4.5	1.0	18		90	
2N792	NPN	0.8	4.5	1.0	36		88	
2N793	NPN	0.8	4.5	1.0	78		330	
2N794	PNP	3	3.0	10	40		120	
2N795	PNP	3	3.0	10	40		120	
2N796	PNP	3	3.0	10	60		130	
2N797	NPN	0.7	1.5	10		75		
2N799	PNP	3	4.5	1.0		135		
2N799A, B	PNP	3	1.5	10		125		
2N800	PNP	3	4.5	1.0		135		
2N801	PNP	4	1.5	2.0		50		Note 7
2N802	PNP	4	1.5	2.0		50		Note 7
2N803	PNP	4	1.5	2.0		80		Note 7
2N804	PNP	4	1.5	2.0		80		Note 7
2N805	PNP	4	1.5	4.0		100		Note 7
2N806	PNP	4	1.5	4.0		100		Note 7
2N807	PNP	3	1.5	20		60		
2N808	PNP	3	1.5	20		60		

2N809	PNP	3	4.5	1.0	15	60		
2N810	PNP	3	4.5	1.0	15	60		
2N811	PNP	3	4.5	1.0	15	80		
2N812	PNP	3	4.5	1.0	15	80		
2N813	PNP	3	4.5	1.0	15	140		
2N814	PNP	3	4.5	1.0	15	140		
2N815	NPN	5	1.5	30	30	100		Note 7
2N816	NPN	5	1.5	30	30	100		Note 7
2N817	NPN	4	4.5	1.0	15	25		
2N818	NPN	4	4.5	1.0	15	25		
2N819	NPN	4	4.5	1.0	15	35		
2N820	NPN	4	4.5	1.0	15	35		
2N821	NPN	4	4.5	1.0	15	65		
2N822	NPN	4	4.5	1.0	15	65		
2N823	NPN	3	1.5	24	24	24		
2N824	NPN	3	4.5	1.0	15	135		
2N825	PNP	3	1.5	10	10	80		
2N826	PNP	3	1.5	10	10	80		
2N828	PNP	3	1.5	10	10	40		
2N834	NPN	0.2	1.5	10	25	40		
2N835	NPN	0.2	1.5	10	25	40		
2N839	NPN	0.3	4.5	1.0	20	40		
2N840	NPN	0.3	4.5	1.0	40		45	
2N841	NPN	0.3	4.5	1.0	80		90	
2N842	NPN	0.3	4.5	1.0	20		330	
2N843	NPN	0.3	4.5	1.0	40			
2N844	NPN	0.3	4.5	1.0		80		
2N845	NPN	0.2	4.5	1.0		80		
2N846	PNP	3	1.5	10		45		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N846A, B	PNP	3	1.5	20		50		Note 1 Note 1
2N849	NPN	0.3	1.5	10	20		60	
2N850	NPN	0.3	1.5	10	40		120	
2N851	NPN	0.5	1.5	10	20		60	
2N852	NPN	0.5	1.5	10	40		120	
2N858	PNP	.06	4.5	1.0	15	33	75	
2N859	PNP	.06	4.5	1.0	30	65	120	
2N860	PNP	.06	4.5	1.0	15	33	45	
2N861	PNP	.06	4.5	1.0	30	65	100	
2N862	PNP	.06	4.5	1.0	20	33	60	
2N863	PNP	.06	4.5	1.0	40	65	120	
2N864	PNP	.06	4.5	1.0	25	65	125	
2N865	PNP	.06	4.5	1.0	100	150	350	
2N869	PNP	5na	4.5	10	20			
2N870	NPN	2.4na	4.5	1.0	30		100	
2N871	NPN	2.4na	4.5	1.0	50		200	
2N902	NPN	0.8	4.5	1.0	9	15	22	
2N903	NPN	0.8	4.5	1.0	18	30	44	
2N904	NPN	0.8	4.5	1.0	18	39	90	
2N905	NPN	0.8	4.5	1.0	36	60	90	
2N906	NPN	0.8	4.5	1.0	76	120		
2N907	NPN	0.5	4.5	1.0	19	55		
2N908	NPN	0.5	4.5	1.0	39	99		
2N909	NPN	0.4	4.5	1.0	40			
2N910	NPN	6na	4.5	1.0	76		200	
2N911	NPN	6na	4.5	1.0	36		90	

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N944	PNP	10na	4.5	1.0	20		35	Note 6
2N945	PNP	10na	4.5	1.0	18		30	Note 6
2N946	PNP	10na	4.5	1.0	18		30	Note 6
2N947	NPN	0.5	4.5	1.0	50		200	
2N955, A	NPN	5	1.5	30		50		
2N956	NPN	3na	4.5	1.0	50		200	
2N957	NPN	2	4.5	1.0	45			
2N958	NPN	0.3	4.5	10		40		
2N959	NPN	0.3	4.5	10		80		
2N960	PNP	3	1.5	50	20	55		
2N961	PNP	3	1.5	50	20	55		
2N962	PNP	3	1.5	50	20	55		
2N963	PNP	5	1.5	10	20			
2N964	PNP	3	1.5	50	40	95		
2N965	PNP	3	1.5	50	40	95		
2N966	PNP	3	1.5	50	40	95		
2N967	PNP	5	1.5	10	40			
2N968	PNP	3	1.5	10	17	35		
2N969	PNP	3	1.5	10	17	35		
2N970	PNP	3	1.5	10	17	35		
2N971	PNP	10	1.5	10	17	35		
2N972	PNP	3	1.5	10	40	75		
2N973	PNP	3	1.5	10	40	75		
2N974	PNP	3	1.5	10	40	75		
2N975	PNP	10	1.5	10	40	75		
2N976	PNP	3	1.5	20		52		

2N978	PNP	3	4.5	30	10	120	Leads= B-E-C Leads= B-E-C Leads= B-E-C Leads= B-E-C
2N979	PNP	3	1.5	10		100	
2N982	PNP	3	1.5	10		85	
2N983	PNP	3	1.5	10		70	
2N984	PNP	5	1.5	10			
2N985	PNP	3	1.5	10	40		
2N987	PNP	8	4.5	1.0	40	100	
2N990	PNP	8	4.5	1.0	40	150	
2N991	PNP	8	4.5	1.0	40	150	
2N992	PNP	8	4.5	1.0	40	150	
2N993	PNP	8	4.5	1.0	40	150	Note 7
2N995	PNP	3na	1.5	20	35	140	
2N996	PNP	3na	1.5	20	35	75	
2N1000	NPN	5	1.5	10		40	
2N1008	PNP	6	4.5	10	40	150	
2N1008A	PNP	4	4.5	10	40	150	
2N1008B	PNP	4	4.5	10	40	150	
2N1010	NPN	7	3.0	0.3		35	
2N1012	NPN	5	1.5	50		50	
2N1017	PNP	0.4	1.5	50		150	
2N1021	PNP	150	1.5	100		80	22 44 88
2N1022	PNP	150	1.5	100		80	
2N1023	PNP	7	4.5	1.5		60	
2N1024	PNP	12na	4.5	1.0	9	15	
2N1025	PNP	12na	4.5	1.0	9	15	
2N1026	PNP	12na	4.5	1.0	18	30	
2N1026A	PNP	12na	4.5	1.0	36	60	
2N1027	PNP	12na	4.5	1.0	18	30	
2N1028	PNP	16na	4.5	1.0	9		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N1034	PNP	0.4	4.5	1.0	9	15	22	
2N1035	PNP	0.4	4.5	1.0	18	30	42	
2N1036	PNP	0.4	4.5	1.0	34	60	88	
2N1037	PNP	0.4	4.5	1.0	9	25	42	
2N1038	PNP	60	1.5	50		70		
2N1039	PNP	60	1.5	50		70		
2N1040	PNP	60	1.5	50		70		
2N1041	PNP	60	1.5	50		70		
2N1042	PNP	60	1.5	50		83		
2N1043	PNP	60	1.5	50		83		
2N1044	PNP	60	1.5	50		83		
2N1045	PNP	60	1.5	50		83		
2N1047, A	NPN	6	4.5	30		15		
2N1048, A	NPN	6	4.5	30		15		
2N1049, A	NPN	6	4.5	30		25		
2N1050, A	NPN	6	4.5	30		25		
2N1051	NPN	.04	4.5	5.0	30		100	
2N1052	NPN	0.5	4.5	20		35		Note 1
2N1053	NPN	0.5	4.5	20		35		Note 1
2N1054	NPN	1	4.5	20		35		Note 1
2N1056	PNP	6	4.5	1.0		25		
2N1057	PNP	5	1.5	20		60		
2N1058	NPN	25	4.5	1.0	10	25		Note 4
2N1059	NPN	16	1.5	35		75		
2N1060	NPN	0.1	4.5	1.0		30		
2N1065	PNP	5	4.5	1.0		25		

2N1066	PNP	7	4.5	1.5				60		
2N1072	NPN	0.1	4.5	1.0				40		
2N1074	NPN	0.4	4.5	5.0				15		22
2N1075	NPN	0.4	4.5	5.0				28		44
2N1076	NPN	0.4	4.5	5.0				60		88
2N1077	NPN	0.4	4.5	5.0				25		44
2N1086	NPN	3	1.5	1.0				40		
2N1086A	NPN	3	1.5	1.0				40		
2N1087	NPN	3	1.5	1.0				40		
2N1090	NPN	5	1.5	20				50		
2N1091	NPN	5	1.5	20				50		
2N1093	PNP	2	4.5	1.0				125		
2N1094	PNP	2	4.5	4.0				49		199
2N1095	NPN	1.5	4.5	5.0				49		
2N1096	NPN	1.5	4.5	5.0				24		
2N1097	PNP	8	4.5	1.0				55		
2N1098	PNP	8	4.5	1.0				45		
2N1101	NPN	25	4.5	1.0			20			
2N1102	NPN	16	4.5	1.0			20			
2N1107	PNP	6	4.5	0.5				50		
2N1108	PNP	6	4.5	0.5				45		
2N1109	PNP	6	4.5	0.5				10		
2N1110	PNP	6	4.5	0.5				28		
2N1111	PNP	6	4.5	0.5				18		
2N1111A	PNP	6	4.5	0.5				28		
2N1111B	PNP	6	4.5	0.5				28		
2N1114	NPN	12	1.5	20			40			180
2N1115	PNP	3	1.5	10				50		Note 4
2N1118	PNP	0.4	4.5	1.0			15	30		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N1118A	PNP	0.4	4.5	1.0	15	25	35	Note 6
2N1119	PNP	.06	1.5	10		16		
2N1121	NPN	0.5	1.5	1.0	32	72		
2N1122	PNP	5	3.0	1.0	35			
2N1122A	PNP	5	3.0	1.0	35			Note 7
2N1123	PNP	5	4.5	3.0		80		
2N1124	PNP	30	4.5	10	40	100		
2N1125	PNP	25	1.5	10		150		
2N1126	PNP	30	4.5	10	40			
2N1128	PNP	14	4.5	2.0	70	120	150	
2N1129	PNP	10	4.5	10		190		
2N1130	PNP	10	4.5	10		130		
2N1131	PNP	0.4	4.5	1.0	15		50	
2N1131A	PNP	.15	4.5	1.0	15		50	
2N1132	PNP	0.4	4.5	1.0	25		100	
2N1132A	PNP	.15	4.5	1.0	25		75	
2N1132B	PNP	3na	4.5	1.0	25		75	
2N1139	NPN	2.5	4.5	10		40		
2N1140	NPN	15	4.5	1.0	20			
2N1141	PNP	3	4.5	10		49		
2N1142	PNP	3	4.5	10		49		
2N1143	PNP	3	4.5	10		49		
2N1144	PNP	8	4.5	1.0		55		
2N1145	PNP	8	4.5	1.0		45		
2N1149	NPN	0.8	4.5	1.0	9		20	
2N1150	NPN	0.8	4.5	1.0	18	24	40	

2N1151	PNP	0.8	4.5	1.0	18	39	90
2N1152	PNP	0.8	4.5	1.0	36	49	90
2N1153	PNP	0.8	4.5	1.0	76	99	
2N1154	PNP	1.5	4.5	5.0	9	15	
2N1155	PNP	1	4.5	5.0	9	15	
2N1156	PNP	1.5	4.5	5.0	9	15	
2N1158	PNP	3	4.5	3.0	5	50	
2N1158A	PNP	3	4.5	3.0	8	50	
2N1169	PNP	6	1.5	50		40	
2N1170	PNP	5	1.5	50		40	
2N1171	PNP	3	1.5	50		50	
2N1175	PNP	5	4.5	1.0	60	80	120
2N1175A	PNP	5	4.5	1.0	60	80	120
2N1176	PNP	16	4.5	10	20		
2N1176A	PNP	12	4.5	10	20		
2N1176B	PNP	12	4.5	10	20		
2N1177	PNP	7	4.5	1.0		90	
2N1178	PNP	7	4.5	1.0		35	
2N1179	PNP	7	4.5	1.0		70	
2N1180	PNP	7	4.5	1.0		70	
2N1185	PNP	4	4.5	1.0	190	260	400
2N1186	PNP	3	4.5	1.0	30	49	70
2N1187	PNP	3	4.5	1.0	50	80	120
2N1188	PNP	3	4.5	1.0	100	130	225
2N1191	PNP	6	4.5	1.0	30	40	70
2N1192	PNP	6	4.5	1.0	50	75	125
2N1193	PNP	6	4.5	1.0	100	160	
2N1194	PNP	6	4.5	1.0	190	280	500
2N1195	PNP	2.5	4.5	10	26	49	200

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N1196	PNP	.12	4.5	2.0	6	10		Note 7
2N1197	PNP	.12	4.5	2.0	6	10		
2N1198	NPN	0.8	4.5	1.0	20	66	200	
2N1199, A	NPN	0.4	4.5	10		35		
2N1204, A	PNP	7	4.5	10		150		
2N1205	NPN	.25	4.5	2.0	10			
2N1206	NPN	0.4	4.5	5.0	25		90	
2N1207	NPN	0.4	4.5	5.0	25		90	
2N1217	NPN	0.8	1.5	2.0		60		
2N1218	NPN	100	1.5	100	40		160	
2N1219	PNP	.07	1.5	5.0	18			
2N1220	PNP	.07	1.5	5.0	9			
2N1221	PNP	.07	4.5	1.0	18			
2N1222	PNP	.07	4.5	1.0	9			
2N1223	PNP	.07	4.5	1.0	6	10		
2N1224	PNP	7	4.5	1.5		60		
2N1225	PNP	7	4.5	1.5		60		
2N1226	PNP	7	4.5	1.5		60		
2N1228	PNP	.06	4.5	1.0	14		32	
2N1229	PNP	.06	4.5	1.0	28		65	
2N1230	PNP	.04	4.5	1.0	14		32	
2N1231	PNP	.04	4.5	1.0	28		65	
2N1232	PNP	.03	4.5	1.0	14		32	
2N1233	PNP	.03	4.5	1.0	28		65	
2N1234	PNP	.02	4.5	1.0	14		32	
2N1238	PNP	.06	4.5	1.0	14		32	

2N1239	PNP	.06	4.5	1.0	28			65	
2N1240	PNP	.04	4.5	1.0	14			32	
2N1241	PNP	.04	4.5	1.0	28			65	
2N1242	PNP	.03	4.5	1.0	14			32	
2N1243	PNP	.03	4.5	1.0	28			65	
2N1244	PNP	.02	4.5	1.0	14			32	
2N1247	NPN	5na	3.0	0.1		70			
2N1248	NPN	.01	3.0	0.1		38			
2N1251	NPN	25	4.5	1.0	70			250	
2N1252	NPN	5	4.5	50		150			
2N1253	NPN	5	4.5	50		35			
2N1254	PNP	0.1	4.5	2.0		70			
2N1255	PNP	0.1	4.5	2.0		10			
2N1256	PNP	.08	4.5	2.0		40			
2N1257	PNP	.08	4.5	2.0		10			
2N1258	PNP	.06	4.5	2.0		40			
2N1259	PNP	.06	4.5	2.0		10			
2N1264	PNP	25	4.5	1.5	15	40			
2N1265	PNP	70	4.5	1.0		50			Note 4
2N1266	PNP	70	4.5	1.0	10	48			Note 4
2N1267	NPN	0.4	4.5	2.0	5	10		16	
2N1268	NPN	0.4	4.5	2.0	10	18		32	
2N1269	NPN	0.4	4.5	2.0	25	44		80	
2N1270	NPN	0.4	4.5	2.0	5	10		16	
2N1271	NPN	0.4	4.5	2.0	10	18		32	
2N1272	NPN	0.4	4.5	2.0	25	44		80	
2N1273	PNP	8	1.5	50		50			
2N1274	PNP	8	1.5	50		50			
2N1275	PNP	0.3	4.5	1.0		14			

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N1276	NPN	0.4	4.5	1.0	9	14	22	
2N1277	NPN	0.4	4.5	1.0	18	33	44	
2N1278	NPN	0.4	4.5	1.0	37	66	90	
2N1279	NPN	0.4	4.5	1.0	76	101	333	
2N1280	PNP	7	1.5	20		60		
2N1281	PNP	7	1.5	20		90		
2N1282	PNP	7	1.5	20		100		
2N1284	PNP	2.5	1.5	10	30	90	150	
2N1285	PNP	7	4.5	1.5	30		100	
2N1288	NPN	5	1.5	10		150		
2N1289	NPN	3	4.5	1.0		125		
2N1299	NPN	4	1.5	50	35		110	
2N1300	PNP	3	3.0	10	40		120	
2N1301	PNP	3	3.0	10	40		120	
2N1302	NPN	2.5	1.5	10		50		
2N1303	PNP	2.5	1.5	10		50		
2N1304	NPN	2.5	1.5	10		70		
2N1305	PNP	2.5	1.5	10		70		
2N1306	NPN	2.5	1.5	10		100		
2N1307	PNP	2.5	1.5	10		100		
2N1308	NPN	2.5	1.5	10		150		
2N1309	PNP	2.5	1.5	10		150		
2N1310	NPN	7	4.5	1.0		35		
2N1311	NPN	7	4.5	1.0		30		
2N1312	NPN	7	4.5	1.0		40		
2N1316	PNP	3	1.5	10		50		

2N1317	PNP	4	1.5	10			50		
2N1318	PNP	5	1.5	10			50		
2N1335	NPN	1	4.5	30			10		
2N1336	NPN	1	4.5	30			10		
2N1337	NPN	1	4.5	30			10		
2N1338	NPN	1	4.5	30			10		
2N1339	NPN	1	4.5	30			10		
2N1340	NPN	1	4.5	30			10		
2N1341	NPN	1	4.5	30			10		
2N1343	PNP	3	1.5	50			25		
2N1344	PNP	5	1.5	20			90		
2N1345	PNP	4	4.5	1.0			66		
2N1346	PNP	5	4.5	1.0			137		
2N1347	PNP	4	1.5	10			80		
2N1349	PNP	6	1.5	10			115		
2N1350	PNP	8	1.5	10			95		
2N1351	PNP	6	1.5	10			65		
2N1352	PNP	2	4.5	1.0			70		
2N1353	PNP	4	1.5	10			70		
2N1354	PNP	4	1.5	10			70		
2N1355	PNP	4	1.5	10			80		
2N1356	PNP	3	1.5	10			80		
2N1357	PNP	4	1.5	10			85		
2N1370	PNP	3	1.5	50			80		Notes 6, 7
2N1371	PNP	3	1.5	50			80		Notes 6, 7
2N1372	PNP	3	4.5	1.0			45		Notes 6, 7
2N1373	PNP	3	4.5	1.0			45		Notes 6, 7
2N1374	PNP	3	4.5	1.0			70		Notes 6, 7
2N1375	PNP	3	4.5	1.0			70		Notes 6, 7

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N1376	PNP	3	4.5	1.0		95		Notes 6, 7
2N1377	PNP	3	4.5	1.0		95		Notes 6, 7
2N1378	PNP	7	4.5	1.0		200		Notes 6, 7
2N1379	PNP	5	4.5	1.0		200		Notes 6, 7
2N1380	PNP	7	4.5	1.0		100		Notes 6, 7
2N1381	PNP	5	4.5	1.0		100		Notes 6, 7
2N1382	PNP	7	4.5	1.0		80		Notes 6, 7
2N1383	PNP	7	4.5	1.0		50		Notes 6, 7
2N1384	PNP	10	1.5	100		60		Note 8
2N1386	NPN	0.1	4.5	10		45		
2N1387	NPN	0.1	4.5	10		30		
2N1388	NPN	.25	4.5	1.0		15		
2N1389	NPN	.25	4.5	1.0		15		
2N1390	NPN	0.8	4.5	1.0		15		
2N1395	PNP	7	4.5	1.5		90		
2N1396	PNP	7	4.5	1.5		90		
2N1397	PNP	7	4.5	1.5		90		
2N1405	PNP	3	4.5	2.0	10			
2N1406	PNP	3	4.5	2.0	10			
2N1407	PNP	3	4.5	2.0	10			
2N1408	PNP	7	4.5	1.0	10	25		
2N1409, A	NPN	5	4.5	100		30		
2N1410, A	NPN	5	4.5	100		30		
2N1411	PNP	5	1.5	50		75		
2N1413	PNP	5	4.5	1.0	20	29	41	
2N1414	PNP	5	4.5	1.0	30	42	64	

2N1415	PNP	5	4.5	1.0	44	70	88	Note 7
2N1416	PNP	Pair of 2N223 with Beta matched to within 20%						
2N1417	NPN	0.5	4.5	1.0	30	60	200	
2N1418	NPN	4	4.5	1.0	30	60	200	
2N1425	PNP	7	4.5	1.0		45		
2N1426	PNP	7	4.5	1.0		120		
2N1427	PNP	5	3.0	0.5	40		120	
2N1428	PNP	0.1	3.0	1.0	25	45		
2N1429	PNP	0.1	3.0	1.0	25	45		
2N1431	NPN	23	1.5	35		110		
2N1439	PNP	13na	4.5	1.0	9		22	
2N1440	PNP	12na	4.5	1.0	9		22	
2N1441	PNP	12na	4.5	1.0	18		36	
2N1442	PNP	12na	4.5	1.0	30		65	
2N1446	PNP	4	4.5	1.0	16	30		
2N1447	PNP	4	4.5	1.0	30	45		
2N1448	PNP	4	4.5	1.0	45	65		
2N1449	PNP	4	4.5	1.0	60	80		
2N1450	PNP	10	1.5	10	20			
2N1451	PNP	3	4.5	1.0		24		
2N1452	PNP	3	4.5	1.0		49		
2N1469	PNP	2na	4.5	1.0	36	60	88	
2N1472	NPN	0.3	4.5	10		25		
2N1474	PNP	16na	4.5	1.0	12	26	44	
2N1474A	PNP	16na	4.5	1.0	18	30	44	
2N1475	PNP	16na	4.5	1.0	36	60	88	
2N1476	PNP	46na	4.5	1.0	12	24	36	
2N1477	PNP	46na	4.5	1.0	30	45	66	
2N1478	PNP	5	4.5	3.0		70		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N1479	NPN	4	4.5	5.0		50		
2N1480	NPN	4	4.5	5.0		50		
2N1481	NPN	4	4.5	5.0		50		
2N1482	NPN	4	4.5	5.0		50		
2N1491	NPN	6	4.5	15		50		
2N1492	NPN	6	4.5	15		50		
2N1493	NPN	6	4.5	15		50		
2N1494	PNP	7	4.5	10		150		
2N1499A	PNP	3	1.5	10		75		
2N1500	PNP	5	1.5	10		90		
2N1507	NPN	0.4	4.5	50		150		
2N1510	NPN	2	1.5	1.0		30		
2N1515	PNP	13	4.5	1.0	20	100		
2N1516	PNP	13	4.5	1.0	20	100		
2N1517	PNP	13	4.5	1.0	20	100		
2N1524	PNP	10	4.5	1.0		55		
2N1525	PNP	10	4.5	1.0		55		
2N1526	PNP	10	4.5	1.0		115		
2N1527	PNP	10	4.5	1.0		115		
2N1528	NPN	1	4.5	1.0	10		100	
2N1564	NPN	0.3	4.5	5.0	20		50	
2N1565	NPN	0.3	4.5	5.0	40		100	
2N1566	NPN	0.3	4.5	5.0	80		200	
2N1566A	NPN	0.16	4.5	5.0	80		200	
2N1572	NPN	0.3	4.5	5.0	20		50	
2N1573	NPN	0.3	4.5	5.0	40		100	

2N1574	NPN	0.3	4.5	5.0	80	16	200
2N1586	NPN	0.5	4.5	1.0	9	16	27
2N1587	NPN	0.4	4.5	1.0	9	16	27
2N1588	NPN	0.3	4.5	1.0	9	16	27
2N1589	NPN	0.5	4.5	1.0	25	33	75
2N1590	NPN	0.4	4.5	1.0	25	33	75
2N1591	NPN	0.3	4.5	1.0	25	33	75
2N1592	NPN	0.5	4.5	1.0	70	110	210
2N1593	NPN	0.4	4.5	1.0	70	110	210
2N1594	NPN	0.3	4.5	1.0	70	110	210
2N1605, A	NPN	3	4.5	1.0		135	
2N1609	PNP	25	4.5	100		45	
2N1610	PNP	25	4.5	100		55	
2N1611	PNP	30	4.5	100		45	
2N1612	PNP	30	4.5	100		55	
2N1613	NPN	3na	4.5	1.0	30		100
2N1614	PNP	6	4.5	1.0		25	
2N1623	PNP	0.4	4.5	1.0		14	
2N1631	PNP	10	4.5	1.0		70	
2N1632	PNP	10	4.5	1.0		70	
2N1633	PNP	10	4.5	1.0		65	
2N1634	PNP	10	4.5	1.0		65	
2N1635	PNP	10	4.5	1.0		65	
2N1636	PNP	10	4.5	1.0		65	
2N1637	PNP	3	4.5	1.0		70	
2N1638	PNP	4	4.5	1.0		65	
2N1639	PNP	4	4.5	1.0		65	
2N1654	PNP	0.3	4.5	1.0		14	
2N1655	PNP	.25	4.5	1.0		14	

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N1656	PNP	.25	4.5	1.0		14		Note 7 Note 7
2N1658	PNP	25	4.5	100		60		
2N1659	PNP	25	4.5	100		60		
2N1663	NPN	0.4	4.5	10		60		
2N1676	PNP	0.1	3.0	1.0		50		
2N1677	PNP	0.1	3.0	1.0	25	50		
2N1678	PNP	3	1.5	20		40		
2N1683	PNP	3	3.0	10	60		130	
2N1684	PNP	3	4.5	1.0		135		
2N1685	NPN	4	1.5	30	60		180	
2N1691	NPN	6	4.5	0.5		40		
2N1694	NPN	8	4.5	1.0		25		
2N1699	PNP	7	4.5	1.5		60		
2N1700	NPN	22	4.5	5.0		40		
2N1705	PNP	7	4.5	1.0	70	110	150	
2N1706	PNP	4	4.5	10		90		
2N1707	PNP	6	4.5	10	40		150	
2N1708	NPN	13na	1.5	10	20			
2N1711	NPN	3na	4.5	1.0	50		200	
2N1714	NPN	0.7	4.5	10	10			Note 1
2N1715	NPN	0.7	4.5	10	10			Note 1
2N1716	NPN	0.7	4.5	10	20			Note 1
2N1717	NPN	0.7	4.5	10	20			Note 1
2N1718	NPN	0.7	4.5	10	10			Note 1
2N1719	NPN	0.7	4.5	10	10			Note 1
2N1720	NPN	0.7	4.5	10	20			Note 1

2N1721	NPN	0.7	4.5	10	20	60	Note 1
2N1726	PNP	10	4.5	1.0		60	
2N1727	PNP	10	4.5	1.0		60	
2N1728	PNP	10	4.5	1.0		60	
2N1742	PNP	6	4.5	2.0		30	
2N1743	PNP	6	4.5	2.0		30	
2N1744	PNP	6	4.5	2.0		30	
2N1745	PNP	6	4.5	2.0		30	
2N1746	PNP	7	4.5	1.0		70	
2N1747	PNP	7	4.5	1.0		70	
2N1748	PNP	6	4.5	1.0	30	45	150
2N1748A	PNP	6	4.5	1.0	50	70	150
2N1749	PNP	6	4.5	1.0	30	45	150
2N1750	PNP	2	3.0	0.5		30	Note 7
2N1752	PNP	6	4.5	1.0	50	250	
2N1754	PNP	5	1.5	10		70	
2N1779	NPN	4	1.5	30		30	
2N1780	NPN	4	1.5	30		60	
2N1781	NPN	3	1.5	24		24	
2N1782	PNP	3	1.5	10		80	
2N1783	PNP	3	4.5	1.0	30		90
2N1784	PNP	4	1.5	4.0		100	Note 7
2N1785	PNP	10	4.5	1.0		60	
2N1786	PNP	10	4.5	1.0		60	
2N1787	PNP	10	4.5	1.0		60	
2N1788	PNP	3	4.5	1.0		60	
2N1789	PNP	4	4.5	1.0		60	
2N1790	PNP	4	4.5	1.0		60	
2N1864	PNP	10	4.5	1.0		60	

Transistor	Type	Max. Icbo μ a	Vce	Ic ma.	Beta			Notes
					Min.	Typ.	Max.	
2N1865	PNP	7	4.5	1.0		70	120	
2N1866	PNP	7	4.5	1.0		70		
2N1867	PNP	7	4.5	1.0		50		
2N1868	PNP	6	4.5	2.0		30		
2N1889	NPN	24	4.5	1.0	30		100	
2N1890	NPN	24	4.5	1.0	50		200	
2N1893	NPN	2na	4.5	1.0	30		100	
2N1917	PNP	2.5na	4.5	1.0	25	50		
2N1918	PNP	2.5na	4.5	1.0	25	50		
2N1919	PNP	7na	4.5	1.0	30		60	Note 6
2N1920	PNP	7na	4.5	1.0	20		35	Note 6
2N1921	PNP	7na	4.5	1.0	18		30	Note 6
2N1922	PNP	7na	4.5	1.0	18		30	Note 6
2N1924	PNP	3	4.5	1.0	30	44	64	
2N1925	PNP	3	4.5	1.0	44	64	88	
2N1926	PNP	3	4.5	1.0	60	80	120	
2N1944	NPN	0.7	3.0	0.2	100		300	
2N1945	NPN	0.5	3.0	0.2	100		300	
2N1946	NPN	0.4	3.0	0.2	100		300	
2N1947	NPN	0.7	4.5	0.5	100		300	
2N1948	NPN	0.5	4.5	0.5	100		300	
2N1949	NPN	0.4	4.5	0.5	100		300	
2N1950	NPN	0.7	4.5	1.0	75	100	250	
2N1951	NPN	0.5	4.5	1.0	75	100	250	
2N1952	NPN	0.4	4.5	1.0	75	100	250	
2N1954	PNP	8	1.5	20	30		120	

2N1955	PNP	8	1.5	20	50		200		
2N1956	PNP	8	1.5	20	30		120		
2N1957	PNP	8	1.5	20	30		120		
2N1960	PNP	3	1.5	10	25				
2N1961	PNP	3	1.5	10	20		60		
2N1962	NPN	.10	1.5	10	20				
2N1963	NPN	.10	1.5	10	25				
2N1972	NPN	0.4	4.5	1.0	40				
2N1973	NPN	6na	4.5	1.0	76		200		
2N1974	NPN	6na	4.5	1.0	36		90		
2N1975	NPN	6na	4.5	1.0	18		50		
2N1983	NPN	2	4.5	1.0	70		210		
2N1984	NPN	2	4.5	1.0	35		100		
2N1985	NPN	2	4.5	1.0	15		45		
2N1986	NPN	2	4.5	30	60				
2N1987	NPN	2	4.5	30	20		100		
2N1988	NPN	1.5	4.5	1.0	20				
2N1989	NPN	1.5	4.5	1.0	10				
2N1991	PNP	3	4.5	30	10				
2N1993	NPN	4	1.5	10	50	50	300		
2N1994	NPN	3	4.5	1.0		75			
2N1995	NPN	3	4.5	1.0		100			
2N1996	NPN	3	4.5	1.0		70			Note 7
2N1997	PNP	5	1.5	100		95			Note 7
2N1998	PNP	5	1.5	100		150			Note 7
2N1999	PNP	5	1.5	100		50			
2N2008	NPN	0.4	4.5	1.0	20		100		
2N2017	NPN	4	4.5	1.0	30				
2N2042, A	PNP	5	4.5	1.0	20		80		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N2043, A	PNP	5	4.5	1.0	45		180	
2N2048	PNP	5	4.5	10	50	125	300	
2N2049	NPN	3na	4.5	1.0	75	110		
2N2084	PNP	8	4.5	1.0	40	100	250	
2N2086	NPN	0.5	4.5	40		100		
2N2087	NPN	0.5	4.5	40		100		
2N2089	PNP	8	4.5	1.0	40	150		
2N2090	PNP	8	4.5	1.0	40	150		
2N2091	PNP	8	4.5	1.0	40	150		
2N2092	PNP	8	4.5	1.0	40	150		
2N2093	PNP	8	4.5	1.0	40	150		
2N2102	NPN	0.5na	4.5	1.0	30		100	
2N2162	PNP	7na	3.0	1.0	20	35		
2N2163	PNP	10na	3.0	1.0	20	35		
2N2164	PNP	20na	3.0	1.0	25	40		
2N2168	PNP	3	1.5	10		100		
2N2169	PNP	3	1.5	10		85		
2N2170	PNP	5	1.5	10		70		
2N2175	PNP	1na	4.5	1.0		100		
2N2176	PNP	1na	4.5	1.0		100		
2N2177	PNP	5na	4.5	1.0		100		
2N2178	PNP	5na	4.5	1.0		100		
2N2188	PNP	2	4.5	2.0	40	90		
2N2189	PNP	2	4.5	2.0	60	135		
2N2190	PNP	2	4.5	2.0	40	90		
2N2191	PNP	2	4.5	2.0	60	135		

2N2192, A	NPN	4na	4.5	10	75			
2N2193, A	NPN	3na	4.5	10	30			
2N2194, A	NPN	4na	4.5	10	15			
2N2196	NPN	17	4.5	30	30			
2N2197	NPN	17	4.5	30	30			
2N2201	NPN	10	4.5	30	30			
2N2202	NPN	10	4.5	30	30			
2N2203	NPN	10	4.5	30	30			
2N2204	NPN	10	4.5	30	30			
2N2205	NPN	13na	1.5	10	20			
2N2206	NPN	13na	1.5	10		80		
2N2217	NPN	3na	4.5	1.0	12			
2N2218	NPN	3na	4.5	1.0	25			
2N2219	NPN	3na	4.5	1.0	50			
2N2220	NPN	3na	4.5	1.0	12			
2N2221	NPN	3na	4.5	1.0	25			
2N2222	NPN	3na	4.5	1.0	50			
2N2242	NPN	46na	1.5	10			120	
2N2256	NPN	10	1.5	10			30	
2N2257	NPN	10	1.5	10			50	
2N2258	PNP	10	1.5	10			30	
2N2259	PNP	10	1.5	10			50	
2N2270	NPN	27na	4.5	5.0	30			180
2N2271	PNP	7	1.5	35	50			100
2N2273	PNP	6	4.5	1.0	20			28
2N2274	PNP	2na	1.5	5.0			15	
2N2275	PNP	Pair of 2N2274 with offset voltage matched.						
2N2276	PNP	2na	1.5	5.0			15	
2N2277	PNP	Pair of 2N2276 with offset voltage matched.						

Transistor	Type	Max. Icbo μ a.	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N2297	NPN	3	4.5	1.0		60		
2N2303	PNP	0.4	4.5	1.0	60			
2N2309	NPN	5na	4.5	0.2	40	50		
2N2330	NPN	1na	1.5	10	50			
2N2331	NPN	1na	1.5	10	50			
2N2363	PNP	3	4.5	2.0	10			
2N2368	NPN	18na	1.5	10		40		
2N2369	NPN	18na	1.5	10		80		
2N2374	PNP	5	4.5	10		90		Note 7
2N2375	PNP	5	4.5	10		90		Note 7
2N2376	PNP	Pair of 2N2375's with Beta matched within 20%						
2N2377	PNP	0.4	4.5	1.0	15	30	120	
2N2378	PNP	.06	1.5	10		16		
2N2387	NPN	3na	4.5	1.0	60			Note 1
2N2388	NPN	3na	4.5	1.0	150			Note 1
2N2391	PNP	4	1.5	10		30		
2N2393	PNP	0.4	4.5	1.0	15		50	
2N2394	PNP	0.4	4.5	1.0	25		100	
2N2397	NPN	0.5na	1.5	10	25		120	
2N2400	PNP	3	1.5	10		60		
2N2401	PNP	1.5	1.5	10		90		
2N2402	PNP	1.5	1.5	10		170		
2N2410	NPN	0.1	4.5	10		75		Note 1
2N2411	PNP	4na	1.5	10		40		Note 1
2N2412	PNP	4na	1.5	10		80		Note 1
2N2413	NPN	.05	4.5	10		75		Note 1

2N2415	PNP	3	4.5	2.0	15	45		
2N2416	PNP	3	4.5	2.0	10	30		
2N2427	NPN	5na	4.5	0.1	40			
2N2428	PNP	7	4.5	2.0	80	125	170	
2N2429	PNP	7	4.5	2.0	130	180	300	
2N2432	NPN	4na	4.5	1.0	50			
2N2433	NPN	27na	4.5	1.0	30		100	
2N2434	NPN	.27na	4.5	1.0	50		200	
2N2435	NPN	0.2na	4.5	1.0	30		100	
2N2436	NPN	0.2na	4.5	1.0	50		200	
2N2437	NPN	.24na	4.5	1.0	18		50	
2N2438	NPN	.24na	4.5	1.0	36		90	
2N2439	NPN	.24na	4.5	1.0	76		200	
2N2440	NPN	0.2na	4.5	1.0	50		200	
2N2443	NPN	2	4.5	1.0	30	62	120	
2N2447	PNP	5	4.5	1.0	25		100	
2N2448	PNP	5	4.5	1.0	25		100	
2N2449	PNP	5	4.5	1.0	50		200	
2N2450	PNP	5	4.5	1.0	50		200	
2N2459	NPN	0.5na	4.5	1.0	30		80	
2N2460	NPN	0.5na	4.5	1.0	50		130	
2N2461	NPN	0.5na	4.5	1.0	100		180	
2N2462	NPN	0.5na	4.5	1.0	150		230	
2N2463	NPN	0.5na	4.5	1.0	30		80	
2N2464	NPN	0.5na	4.5	1.0	50		130	
2N2465	NPN	0.5na	4.5	1.0	100		180	
2N2466	NPN	0.5na	4.5	1.0	150		230	
2N2479	NPN	1.4	4.5	6.0	60	100		
2N2482	NPN	5	4.5	2.0	15		175	

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N2494	PNP	6	4.5	1.0	20	70		
2N2495	PNP	4	4.5	1.0	20	70		
2N2515	NPN	1.5na	4.5	1.0	30		100	
2N2516	NPN	1.5na	4.5	1.0	60		150	
2N2518	NPN	1.1na	4.5	1.0	30		100	
2N2519	NPN	1.1na	4.5	1.0	60		200	
2N2520	NPN	1.5na	4.5	1.0	18		90	
2N2521	NPN	1.5na	4.5	1.0	36		90	
2N2522	NPN	1.5na	4.5	1.0	76		333	
2N2523	NPN	0.6na	4.5	1.0	60		350	
2N2524	NPN	0.6na	4.5	1.0	150		600	
2N2529	NPN	19na	4.5	1.0	12	16	22	
2N2530	NPN	19na	4.5	1.0	18	28	42	
2N2531	NPN	19na	4.5	1.0	36	46	90	
2N2532	NPN	19na	4.5	1.0	76	100	225	
2N2533	NPN	19na	4.5	10		50		
2N2534	NPN	19na	4.5	10		90		
2N2586	NPN	2na	4.5	1.0	150	375	600	
2N2590	PNP	6na	4.5	1.0	30		80	
2N2591	PNP	6na	4.5	1.0	50		135	
2N2592	PNP	6na	4.5	1.0	100		200	
2N2593	PNP	6na	4.5	1.0	150		275	
2N2595	PNP	7.5na	4.5	1.0	15		60	
2N2596	PNP	7.5na	4.5	1.0	30		120	
2N2597	PNP	7.5na	4.5	1.0	60		240	
2N2598	PNP	6na	4.5	1.0	15		60	

2N2599	PNP	6na	4.5	1.0	30	120	
2N2600	PNP	6na	4.5	1.0	60	240	
2N2601	PNP	8na	4.5	1.0	18	90	
2N2602	PNP	8na	4.5	1.0	36	90	
2N2603	PNP	8na	4.5	1.0	76	333	
2N2604	PNP	3na	4.5	1.0	60	350	
2N2605	PNP	3na	4.5	1.0	150	600	
2N2611	NPN	10	4.5	30	12		
2N2613	PNP	4	4.5	0.5	60	125	
2N2614	PNP	4	4.5	1.0		120	
2N2617	PNP	.06	4.5	1.0	25	80	
2N2618	NPN	1na	4.5	1.0	30	150	
2N2632	NPN	3na	4.5	50	40	140	
2N2633	NPN	3na	4.5	50	40	140	
2N2634	NPN	3na	4.5	50	40	140	
2N2635	PNP	2	1.5	50	45	300	
2N2645	NPN	3na	4.5	1.0	75		
2N2651	NPN	18na	1.5	10		110	
2N2671	PNP	8	4.5	1.0	40	50	
2N2672	PNP	8	4.5	1.0	40	150	
2N2673	NPN	.04	4.5	1.0	9	150	
2N2674	NPN	.04	4.5	1.0	18	22	
2N2675	NPN	.04	4.5	1.0	37	44	
2N2676	NPN	.04	4.5	1.0	76	90	
2N2699	PNP	3	1.5	50	40	333	
2N2708	NPN	0.5	4.5	2.0		70	
2N2710	NPN	13na	1.5	10	40	105	
2N2711	NPN	0.2	4.5	1.0		65	
2N2712	NPN	0.2	4.5	1.0		47	
						220	

Leads= E-C-B
Leads= E-C-B

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2N2713	NPN	0.2	4.5	1.0		85		Leads= E-C-B
2N2714	NPN	0.2	4.5	1.0		150		Leads= E-C-B
2N2715	NPN	0.2	4.5	1.0		65		Leads= E-C-B
2N2716	NPN	0.2	4.5	1.0		100		Leads= E-C-B
2N2717	PNP	13	1.5	30	50			
2N2787	NPN	3na	4.5	1.0	20		60	
2N2788	NPN	3na	4.5	1.0	40		120	
2N2789	NPN	3na	4.5	1.0	100		300	
2N2790	NPN	3na	4.5	1.0	20		60	
2N2791	NPN	3na	4.5	1.0	40		120	
2N2792	NPN	3na	4.5	1.0	100		300	
2N2808	NPN	5na	4.5	2.0	20		200	
2N2861	PNP	4na	4.5	1.0	50	75	180	
2N2862	PNP	4na	4.5	1.0	25	50	180	
2N2865	NPN	5na	4.5	4.0		110		
2S44	PNP	6	4.5	1.0	9			
2S45	PNP	2	4.5	1.0			19	
2S49	PNP	6	4.5	1.0	30	60		
2S50	PNP	2	1.5	24	30	100	150	
2S52	PNP	6	4.5	1.0	25	55		
2S53	PNP	6	4.5	1.0	20	45		
2S54	PNP	6	4.5	1.0	80	140	200	
2S56	PNP	6	4.5	1.0			49	
2S57	PNP	6	4.5	1.0	19	76	82	
2S58	PNP	6	4.5	1.0	19	76	82	
2S60A	PNP	6	4.5	1.0	19	66	500	

2S92	PNP	6	4.5	1.0	39	66	82
2S93	PNP	6	4.5	1.0	19	49	82
2S175	PNP	6	4.5	1.0	19	76	82
2S189	PNP	6	1.5	100	40	75	145
2SA19	PNP	7	4.5	1.0		20	
2SA20	PNP	7	4.5	1.0		30	
2SA21	PNP	7	4.5	1.0		50	
2SA37	PNP	6	4.5	1.0		66	
2SA38	PNP	6	4.5	1.0		66	
2SA39	PNP	6	4.5	1.0		49	
2SA49	PNP	6	4.5	1.0	30	60	
2SA50	PNP	2	1.5	24	30	100	150
2SA52	PNP	6	4.5	1.0	25	55	
2SA53	PNP	6	4.5	1.0	20	45	
2SA57	PNP	6	4.5	1.0	19	76	82
2SA58	PNP	6	4.5	1.0	19	76	82
2SA60A	PNP	6	4.5	1.0	19	66	500
2SA65	PNP	7	1.5	100		85	
2SA66	PNP	7	1.5	100		85	
2SA67	PNP	7	1.5	100		85	
2SA72	PNP	6	4.5	1.0	19	49	500
2SA73	PNP	6	4.5	1.0	19	49	500
2SA76	PNP	6	4.5	1.0	19	66	500
2SA77	PNP	7	4.5	1.0	19	66	500
2SA78	PNP	8	1.5	80		140	
2SA80	PNP	6	4.5	1.0		75	
2SA81	PNP	6	4.5	1.0		95	
2SA82	PNP	6	4.5	1.0		72	
2SA83	PNP	6	4.5	1.0		56	

Note 7

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2SA84	PNP	6	4.5	1.0		68		
2SA85	PNP	6	4.5	1.0		93		
2SA86	PNP	7	4.5	1.0	20	80	175	
2SA92	PNP	6	4.5	1.0	39	66	82	
2SA93	PNP	6	4.5	1.0	19	49	82	
2SA121	PNP	4	4.5	1.0	9	24	82	
2SA122	PNP	4	4.5	1.0	9	24	82	
2SA123	PNP	4	4.5	1.0	9	24	82	
2SA124	PNP	4	4.5	1.0	14	32	82	
2SA125	PNP	1	4.5	1.0	32	49	66	
2SA154	PNP	3	4.5	1.0		20		
2SA155	PNP	3	4.5	1.0		30		
2SA156	PNP	3	4.5	1.0		50		
2SA167	PNP	4	4.5	1.0	40	70	180	
2SA168, A	PNP	4	4.5	1.0	40	70	180	
2SA169	PNP	4	1.5	10	45	70	250	
2SA170	PNP	4	1.5	10	45	70	250	
2SA171	PNP	4	1.5	10	30	60	250	
2SA173	PNP	4	1.5	10	30	60	250	
2SA174	PNP	4	1.5	10	30	60	250	
2SA175	PNP	6	4.5	1.0	19	76	82	
2SA204	PNP	4	1.5	10	20	60	150	
2SA205	PNP	3	1.5	10	20	40	150	
2SA206	PNP	3	1.5	10	30	55	150	
2SA207	PNP	3	1.5	10	40	65	150	
2SA208	PNP	3	1.5	50		50		

2SA209	PNP	3	1.5	50			105	
2SA210	PNP	3	1.5	50			120	
2SA213	PNP	4	4.5	1.0			25	
2SA214	PNP	4	4.5	1.0			25	
2SA215	PNP	4	4.5	1.0			40	
2SA216	PNP	4	4.5	1.0			40	
2SA229	PNP	6	4.5	2.0	4		9	
2SA230	PNP	6	4.5	2.0	4		9	
2SA233	PNP	13	4.5	1.0			90	
2SA234	PNP	13	4.5	1.0			110	
2SA235	PNP	13	4.5	1.0			125	
2SA236	PNP	6	4.5	1.0	19		49	124
2SA237	PNP	6	4.5	1.0	19		49	500
2SA238	PNP	4	4.5	5.0	7			100
2SA239	PNP	6	4.5	2.0	4		9	
2SA240	PNP	6	4.5	2.0	9		19	
2SA244	PNP	4	4.5	5.0	10		30	
2SA245	PNP	4	4.5	5.0	10		30	
2SA285	PNP	7	4.5	1.0	18		70	300
2SA286	PNP	7	4.5	1.0	44		70	146
2SA287	PNP	7	4.5	1.0	44		70	146
2SB40	PNP	6	1.5	100	43		100	200
2SB47	PNP	6	1.5	0.5	60		120	250
2SB48	PNP	9	4.5	1.0	21		36	62
2SB49	PNP	9	4.5	1.0	38		66	110
2SB50	PNP	9	4.5	1.0	66		99	142
2SB51	PNP	9	4.5	1.0	21		36	62
2SB52	PNP	9	4.5	1.0	38		66	110
2SB53	PNP	4	4.5	1.0	41		55	66

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2SB54	PNP	6	4.5	1.0	80	140	200	
2SB55	PNP	6	1.5	50	45	80	125	
2SB56	PNP	6	1.5	50	45	80	125	
2SB67	PNP	4	4.5	1.0		45		
2SB68	PNP	6	1.5	10		50		
2SB73	PNP	5	4.5	0.5		65		
2SB90	PNP	7	4.5	1.0	30	66	124	
2SB91	PNP	7	1.5	30	40	70	120	
2SB94	PNP	6	1.5	50	45	80	125	
2SB98	PNP	10	4.5	1.0	15	40	90	
2SB99	PNP	10	4.5	1.0	90	120	250	
2SB100	PNP	4	4.5	1.0	40	60	80	
2SB101	PNP	4	4.5	1.0	40	60	80	
2SB102	PNP	4	4.5	1.0	40	60	80	
2SB103	PNP	4	1.5	50	60	90	120	
2SB104	PNP	4	1.5	50	60	90	120	
2SB110	PNP	10	4.5	1.0	18	30	41	
2SB111	PNP	10	4.5	1.0	30	45	57	
2SB112	PNP	10	4.5	1.0	43	60	79	
2SB113	PNP	10	4.5	1.0	61	80	101	
2SB114	PNP	10	1.5	20	45	65	85	
2SB115	PNP	10	1.5	20	60	85	100	
2SB116	PNP	10	1.5	20	80	110	145	
2SB117	PNP	10	1.5	20	105	140	235	
2SB150	PNP	10	1.5	20	20	35	60	
2SB156	PNP	8	1.5	100		60		

2SB161	PNP	10	1.5	50	34	50	64
2SB162	PNP	10	1.5	50	34	50	64
2SB163	PNP	10	1.5	50	46	70	93
2SB164	PNP	10	1.5	50	46	70	93
2SB165	PNP	10	1.5	50	67	100	138
2SB166	PNP	10	1.5	50	67	100	138
2SB189	PNP	6	1.5	100	40	75	145
2SB218	PNP	3	1.5	100	17	50	110
2SB219	PNP	6	1.5	20	19	31	42
2SB220	PNP	6	1.5	20	34	50	65
2SB221	PNP	6	1.5	20	53	72	90
2SB222	PNP	6	1.5	20	72	97	121
2SB223	PNP	6	1.5	20	99	150	198
2SB224	PNP	4	1.5	20	19	35	42
2SB225	PNP	4	1.5	20	34	52	65
2SB226	PNP	4	1.5	20	53	73	90
2SB227	PNP	4	1.5	20	72	91	121
2SB264	PNP	5	1.5	0.5	45	70	100
2SC11	NPN	5	4.5	1.0	22	44	150
2SC30	NPN	0.4	4.5	10	25	45	100
2SC31	NPN	0.4	4.5	10	20	35	55
2SC32	NPN	0.4	4.5	10	40	60	110
2SC33	NPN	0.5	4.5	5.0	25	55	125
2SC38	NPN	0.5	4.5	10	20	50	200
2SC73	NPN	4	4.5	1.0	26	41	82
2SC75	NPN	4	4.5	1.0	9	24	82
2SC76	NPN	4	4.5	1.0	9	24	82
2SC77	NPN	4	4.5	1.0	9	24	82
2SC78	NPN	1	4.5	1.0	32	49	66

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
2SC89	NPN	3	1.5	50		50		
2SC90	NPN	3	1.5	50		105		
2SC91	NPN	3	1.5	50		120		
2SC121	NPN	0.8	4.5	1.0	20	40	75	
2SC122	NPN	0.8	4.5	1.0	50	90	150	
2SC123	NPN	0.8	4.5	1.0	80	140	200	
2SD11	NPN	4	1.5	20	25	80	300	
2SD19	NPN	7	1.5	20	19	31	42	
2SD20	NPN	7	1.5	20	34	50	65	
2SD21	NPN	7	1.5	20	53	72	90	
2SD22	NPN	7	1.5	20	72	97	121	
2SD23	NPN	7	1.5	20	99	150	300	
2SD61	NPN	4	4.5	1.0	32	43	55	
2SD62	NPN	4	4.5	1.0	32	43	55	
2SD63	NPN	4	1.5	50	29	45	62	
2SD64	NPN	6	4.5	1.0	46	76	142	
2SD65	NPN	6	4.5	1.0	25	43	70	
2SD66	NPN	6	4.5	1.0	14	23	39	
2T64	NPN	6	4.5	1.0	46	76	142	
2T65	NPN	6	4.5	1.0	25	43	70	
2T66	NPN	6	4.5	1.0	14	23	39	
2T69	NPN	4	1.5	50	26	50	82	
2T73	NPN	4	4.5	1.0	9	41	82	
2T75	NPN	4	4.5	1.0	9	24	82	
2T76	NPN	4	4.5	1.0	9	24	82	
2T77	NPN	4	4.5	1.0	9	24	82	

2T78	NPN	1	4.5	1.0	32	49	66		
2T201	PNP	4	4.5	1.0	9	24	82		
2T203	PNP	4	4.5	1.0	14	32	82		
2T204	PNP	8	4.5	1.0		49			
2T205	PNP	8	4.5	1.0	32	49	66		
2T205A	PNP	1	4.5	1.0	32	49	66		
2T311	PNP	9	4.5	1.0	21	36	62		
2T312	PNP	9	4.5	1.0	21	36	62		
2T313	PNP	9	4.5	1.0	38	66	110		
2T314	PNP	9	4.5	1.0	38	66	110		
2T315	PNP	9	4.5	1.0	66	99	142		
2T321	PNP	9	4.5	1.0	21	36	62		
2T322	PNP	9	4.5	1.0	21	36	62		
2T323	PNP	9	4.5	1.0	38	66	110		
2T324	PNP	9	4.5	1.0	38	66	110		
2T383	PNP	4	4.5	1.0	41	55	66		
2T681	NPN	4	4.5	1.0	32	42	55		
2T682	NPN	4	4.5	1.0	32	42	55		
3N25	PNP	20	4.5	0.5		65		Note 5	
3N34	NPN	0.4	4.5	1.0		20		Note 5	
3N35	NPN	0.4	4.5	1.0		20		Note 5	
3N36	NPN	10	4.5	1.0	9	100		Note 5	
3N37	NPN	10	4.5	1.0	13	100		Note 5	
320	PNP	6	4.5	1.0		125			
3609	NPN	10	4.5	1.0		32			
AC105	PNP	8	1.5	40		33		Note 6	
AC106	PNP	8	1.5	40		50		Note 6	
AC107	PNP	3	4.5	0.3	35	60	160		
AC125	PNP	7	4.5	2.0	80	125	170		

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
AC126	PNP	7	4.5	2.0	130	180	300	Note 7
AC128	PNP	7	1.5	50	55	90	175	
AF101	PNP	7	4.5	0.5		50		
AF102	PNP	6	4.5	1.0	20			
AF105	PNP	30	4.5	0.5		45		
AF114	PNP	8	4.5	1.0	40	150		
AF115	PNP	8	4.5	1.0	40	150		
AF116	PNP	8	4.5	1.0	40	150		
AF117	PNP	8	4.5	1.0	40	150		
AF118	PNP	5	4.5	10		200		
AF124	PNP	8	4.5	1.0		150		
AF125	PNP	8	4.5	1.0		150		
AF126	PNP	8	4.5	1.0		150		
AF127	PNP	8	4.5	1.0		150		
AFZ12	PNP	6	4.5	1.0	20	70		
BCY10	PNP	0.1	4.5	10		40		
BCY11	PNP	0.1	4.5	10		40		
BCY12	PNP	0.1	4.5	10		40		
BCZ10	PNP	.06	4.5	1.0	15	20	60	
BCZ11	PNP	.06	4.5	1.0	25	35	60	
BCZ12	PNP	.06	4.5	1.0	10	15		
CK4, A	PNP	3	1.5	12		30		
CK13	PNP	3	4.5	1.0		30		
CK13A	PNP	3	4.5	1.0		30		

CK14	PNP	3	4.5	1.0				60			
CK14A	PNP	3	4.5	1.0				60			
CK16	PNP	3	4.5	1.0				80			
CK16A	PNP	3	4.5	1.0				80			
CK17	PNP	3	4.5	1.0				140			
CK17A	PNP	3	4.5	1.0				140			
CK22	PNP	2.5	4.5	1.0			54	90	132	Note 7	
CK22A	PNP	2.5	4.5	1.0			54	90	132	Note 7	
CK25, A	PNP	4	1.5	30				30			
CK26, A	PNP	4	1.5	40				40			
CK27, A	PNP	4	1.5	2.0				80			
CK28, A	PNP	4	1.5	4.0				100			
CK64	PNP	2.5	4.5	1.0			13	25	45		
CK64A	PNP	2.5	4.5	1.0			13	25	45		
CK65	PNP	2.5	4.5	1.0			27	45	66		
CK65A	PNP	2.5	4.5	1.0			27	45	66		
CK66	PNP	2.5	4.5	1.0			54	90	132		
CK66A	PNP	2.5	4.5	1.0			54	90	132		
CK67	PNP	2.5	4.5	1.0			108	180			
CK67A	PNP	2.5	4.5	1.0			108	180			
CK83	PNP	6	4.5	1.0				60			
CK86	PNP	6	4.5	1.0				200			
CK721	PNP	30	4.5	1.0				45			
CK722	PNP	30	4.5	1.0				22			
CK790	PNP	.09	4.5	1.0			9	14	19		
CK791	PNP	.09	4.5	1.0			18	24	36		
CK793	PNP	.09	4.5	1.0			9	16	36		
CK942	PNP	0.4	4.5	1.0				14			
GET103	PNP	15	4.5	1.0				55			

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
GET104	PNP	15	1.5	0.5		50		
GET106	PNP	15	4.5	1.0		60		
GET114	PNP	15	4.5	1.0		55		
GET873	PNP	3	4.5	1.0		35		
GET874	PNP	3	4.5	1.0		40		
GFT20	PNP	20	3.0	1.0		33		
GFT20R	PNP	20	3.0	1.0		33		
GFT20/30	PNP	20	3.0	1.0		33		
GFT20/60	PNP	20	3.0	1.0		33		
GFT21	PNP	20	3.0	3.0		90		
GFT21R	PNP	20	3.0	3.0		90		
GFT21/30	PNP	20	3.0	3.0		90		
GFT21/60	PNP	20	3.0	3.0		90		
GFT22	PNP	20	3.0	5.0		150		
GFT22R	PNP	20	3.0	5.0		150		
GFT22/30	PNP	20	3.0	5.0		150		
GFT22/60	PNP	20	3.0	5.0		150		
GFT25	PNP	20	3.0	2.0		50		
GFT25R	PNP	20	3.0	2.0		50		
GFT25/30	PNP	20	3.0	2.0		50		
GFT25/60	PNP	20	3.0	2.0		50		
GT14	PNP	15	4.5	1.0	20	28	34	
GT20	PNP	15	4.5	1.0	35	45		
GT34	PNP	15	4.5	1.0	10	15	19	
GT34HV	PNP	7	4.5	1.0	10	25		
GT34S	PNP	15	4.5	1.0	10	15	19	

GT74	PNP	10	4.5	1.0	50	150	99	
GT75	PNP	6	4.5	1.0	50	75	100	
GT81	PNP	10	4.5	1.0		100		
GT81HS	PNP	10	4.5	1.0		150		
GT82	PNP	6	4.5	1.0	35	45		
GT83	PNP	15	4.5	1.0	20	28	34	
GT87	PNP	15	4.5	1.0	50	65		
GT88	PNP	10	4.5	1.0	80	100	140	
GT109	PNP	10	4.5	1.0	50	65		
GT122	PNP	10	4.5	1.0	30			
GT123	PNP	6	4.5	1.0		20		
GT222	PNP	20	4.5	1.0		20		
GT229	NPN	20	4.5	1.0		15		
GT758	PNP	6	4.5	1.0		20		
GT759	PNP	6	4.5	1.0		25		
GT759R	PNP	10	4.5	1.0		40		
GT760	PNP	1	4.5	1.0		40		
GT760R	PNP	10	4.5	1.0		75		
GT761	PNP	1	4.5	1.0		70		
GT761R	PNP	10	4.5	1.0		150		
GT762	PNP	1	4.5	1.0		120		
GT762R	PNP	10	4.5	1.0		120		
GT763	PNP	1	4.5	1.0		60		
GT792R	NPN	10	4.5	1.0		40		
GT905	NPN	6	4.5	1.0		40		
GT905R	NPN	10	4.5	1.0		40		
GT947	NPN	6	4.5	1.0		40		
GT948R	NPN	6	4.5	1.0		40		
GT949	NPN	6	4.5	1.0		100		

Transistor	Type	Max. I _{co} μ a	V _{ce}	I _c ma	Beta			Notes
					Min.	Typ.	Max.	
GT949R	NPN	10	4.5	1.0	40		160	
GT1200	NPN	7	4.5	1.0		35		
OC22	PNP	66	1.5	100		200		
OC23	PNP	66	1.5	100		200		
OC24	PNP	66	1.5	100		200		
OC30	PNP	21	4.5	100		36		
OC44	PNP	0.5	4.5	1.0	45	100		Notes 6, 7
OC45	PNP	0.5	4.5	1.0	25	50		Notes 6, 7
OC53	PNP	1.5	1.5	.25	20	35		Notes 6, 7
OC54	PNP	1.5	1.5	.25	30			Notes 6, 7
OC55	PNP	1.5	1.5	.25	50		125	Notes 6, 7
OC56	PNP	1.5	1.5	2.0				Notes 6, 7
OC57	PNP	1.5	1.5	.25				Notes 6, 7
OC58	PNP	1.5	1.5	.25	20			Notes 6, 7
OC59	PNP	1.5	1.5	.25	30			Notes 6, 7
OC65	PNP	12	1.5	0.5	50			Notes 6, 7
OC66	PNP	12	1.5	3.0				
OC70	PNP	12	1.5	0.5	20		40	
OC71	PNP	12	1.5	3.0	30		76	
OC72	PNP	10	4.5	10	45	70	120	
OC74	PNP	12	4.5	5.0	25	50	125	
OC75	PNP	12	1.5	3.0	65	90	130	
OC79	PNP	14	4.5	50	50	100	160	
OC80	PNP	12	4.5	50		180		
OC123	PNP	66	4.5	50		145		
OC169	PNP	13	4.5	1.0	20	100		

OC170	PNP	13	4.5	1.0	20	100	100	
OC171	PNP	13	4.5	1.0	20	100		60
OC200	PNP	.07	4.5	1.0	15	20		80
OC201	PNP	.07	4.5	1.0	25	35		
OC203	PNP	0.1	4.5	1.0	10	15		
OC204	PNP	0.1	1.5	10		40		
OC205	PNP	0.1	4.5	10		40		
OC206	PNP	0.1	4.5	10		40		
OC602	PNP	10	1.5	2.0	20	40		50
OC603	PNP	10	1.5	2.0	20	50		150
OC604	PNP	10	1.5	2.0	50	65		150
OC612	PNP	10	4.5	0.5		60		
OC613	PNP	10	4.5	0.5		60		
OC614	PNP	30	4.5	0.5		60		
OC615	PNP	30	4.5	0.5		110		
SB100	PNP	0.5	3.0	0.5		20		
SFT106	PNP	10	4.5	1.0		35		
SFT107	PNP	10	4.5	1.0		55		
SFT108	PNP	10	4.5	1.0		100		
ST9	NPN	0.5	4.5	1.0	30	60		200
ST10	NPN	0.3	4.5	1.0	10	16		25
ST11	NPN	0.3	4.5	1.0	20	30		50
ST12	NPN	0.3	4.5	1.0	40	60		100
ST13	NPN	0.3	4.5	1.0	30	45		60
ST14	NPN	0.3	4.5	1.0	80	130		200
ST15	NPN	5na	4.5	1.0	10	50		100
ST29	NPN	4	4.5	1.0	30	60		200
ST30	NPN	0.2	4.5	1.0	10	16		25
ST31	NPN	0.2	4.5	1.0	20	30		50

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
ST32	NPN	0.2	4.5	1.0	40	60	100	Note 8
ST33	NPN	0.2	4.5	1.0	30	45	60	
ST34	NPN	0.2	4.5	1.0	80	130	200	
ST35	NPN	5na	4.5	1.0	10	50	100	
ST40	NPN	.15	4.5	1.0	10	16	25	
ST41	NPN	.15	4.5	1.0	20	30	50	
ST42	NPN	.15	4.5	1.0	40	60	100	
ST44	NPN	.15	4.5	1.0	80	130	200	
ST45	NPN	5na	4.5	1.0	10	50	100	
ST903	NPN	1	4.5	1.0	9	16	20	
ST904	NPN	1	4.5	1.0	18	31	40	Note 8
ST904A	NPN	1	4.5	1.0	18	60	90	
ST905	NPN	1	4.5	1.0	36	65	90	
ST910	NPN	1	4.5	1.0	76	140		
ST1026	NPN	5na	3.0	0.1		70		
ST3031	NPN	0.5	4.5	1.0	40	60		
T1000	PNP	20	4.5	2.0		65		
T1001	PNP	20	4.5	2.0		95		
TF65	PNP	5	1.5	2.0		45		
TF65/30	PNP	5	1.5	2.0		45		
TI363	PNP	2	4.5	0.5	35			Note 1 Note 1
TI364	PNP	3	4.5	0.5	20			
TI420	NPN	3na	4.5	1.0	60			
TI421	NPN	3na	4.5	1.0	150			
TI426	PNP	4	1.5	10	15		45	
TI428	PNP	0.4	4.5	1.0	15		50	

Transistor	Type	Max. Icbo μ a	Vce	Ic ma	Beta			Notes
					Min.	Typ.	Max.	
TS619	PNP	6	4.5	1.0		50		
TS627	PNP	10	4.5	10		90		
TS629	PNP	15	4.5	10	40		150	
TS1007	PNP	10	4.5	1.0	70	110	150	
XA101	PNP	5	4.5	1.0		35		
XA102	PNP	5	4.5	1.0		60		
XA103	PNP	5	4.5	1.0		35		
XA104	PNP	5	4.5	1.0		60		
XA124	PNP	20	4.5	1.0		55		
XB102	PNP	10	4.5	1.0		30		
XB103	PNP	10	4.5	1.0		66		
XB104	PNP	10	4.5	1.0		30		

